

Integrated Process For Acetic Acid And Methanol

Abstract

An integrated large capacity, single-train process for making 1,000,000 MTPD methanol and 300,000 MTPD acetic acid is disclosed. Syngas 120 is produced by autothermal reforming 118 of natural gas 102 where the feed 112 of the natural gas is supplied with oxygen and CO₂ recycle 110 to the autothermal reformer (ATR) 118. A portion (5–50%) of the syngas is fed to CO₂ removal 122 to obtain the recycle CO₂ and cold box 130 to obtain a hydrogen stream 131 and a CO stream 135. The 50–95% remaining syngas, hydrogen stream 131 and optionally any CO₂ from an associated process are fed to methanol synthesis 140, which produces the methanol. The methanol is supplied to an acetic acid unit 136 with the CO 135 to make the acetic acid, which in turn can be supplied to a VAM synthesis unit 148. Oxygen for the ATR and any VAM synthesis can be supplied by a single common air separation unit 116, and utilities such as steam generation can further integrate the process.